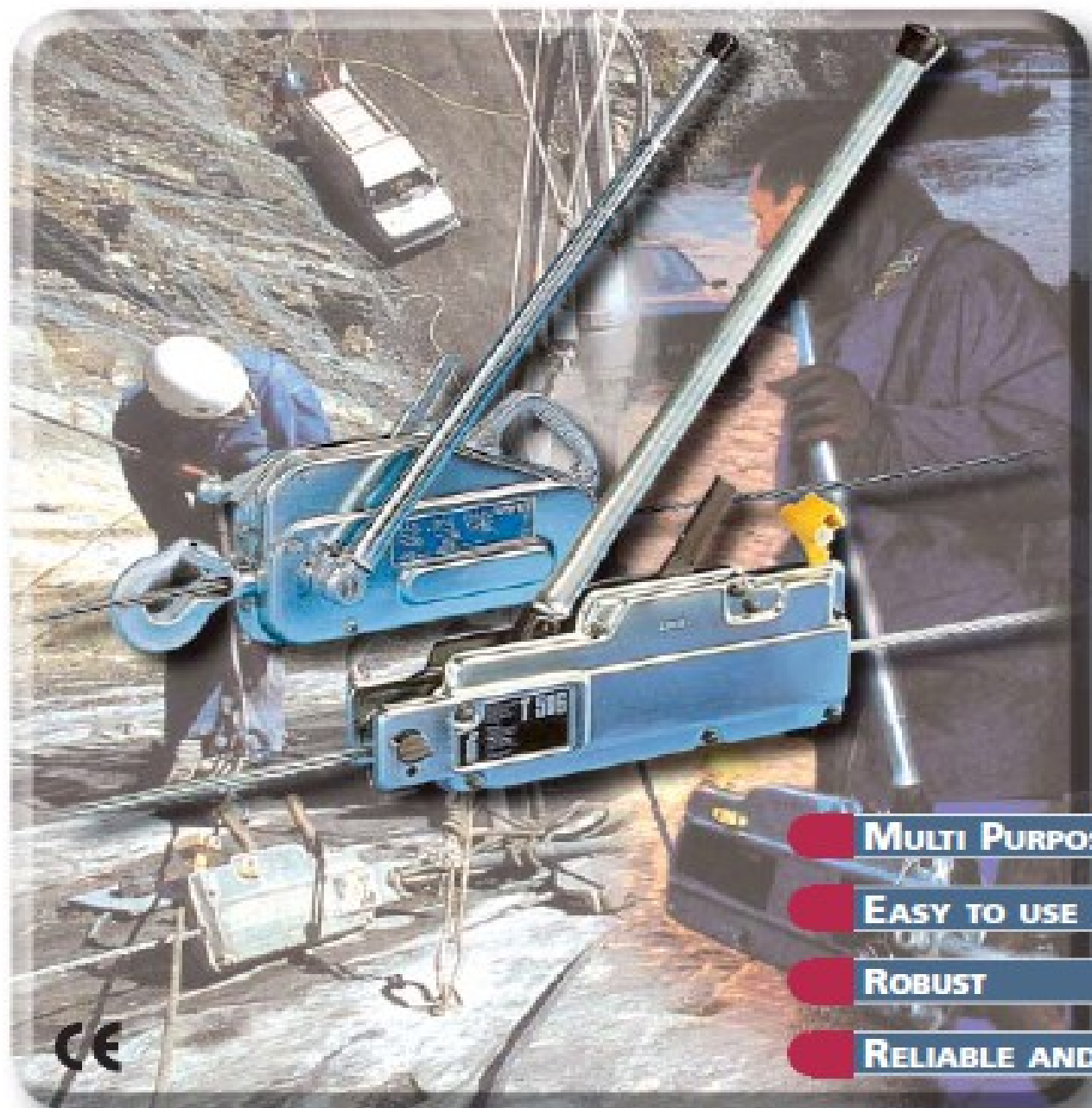


tirfor®

lifting and pulling machines with unlimited wire rope



MULTI PURPOSE

EASY TO USE

ROBUST

RELIABLE AND SAFE

 **Tractel** Group

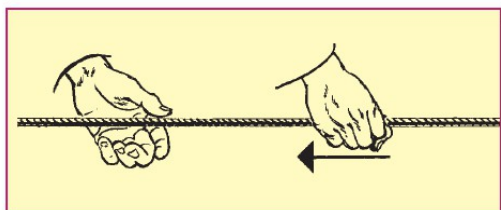
tirfor®

TIRFOR... lift, pull, lower and position

The TIRFOR lifting and pulling machines are safe, reliable and efficient. Suitable for many applications, TIRFOR machines are lever operated hoists using a separate wire rope. One-man operated, using a telescopic operating handle, they can work in any position and over any height of lift. They can replace conventional winches and other hoists for many applications.

THE TIRFOR PRINCIPLE

The principle may be described as «hand-to-hand», like a sailor pulling on a rope. While one hand pulls the other changes position to pull in turn. The two hands represent the 2 jaws of the TIRFOR. They grip the wire rope without damaging it, and alternately pull it during forward operation and hold it during reverse operation. The effort is transferred to the jaws by two levers : one for forward operation and the other for reverse operation. The load is held securely at all times.



TIRFOR wire rope

The wire rope for the TIRFOR machine is not a standard production rope ; it has been developed specially to suit the TIRFOR machine. TIRFOR wire ropes are supplied on a reeler for ease of transport and storage.



Standard 20 m wire rope on reeler



TIRFOR T 500 light duty range
Smaller and lighter, the TIRFOR T-500 machines are even easier to handle, whilst still giving a high mechanical advantage and complete operating safety.



TIRFOR TU standard range
TIRFOR TU machines are in daily operation on construction sites around the world putting power where it is needed for lifting, pulling and handling a wide variety of loads. Only the TU range is approved for manriding.

in complete safety...

ADVANTAGES

multiple operation

- works in any position horizontal, vertical or angled
- unlimited length of wire rope
- increase the nominal capacity with multiple sheave blocks

simple

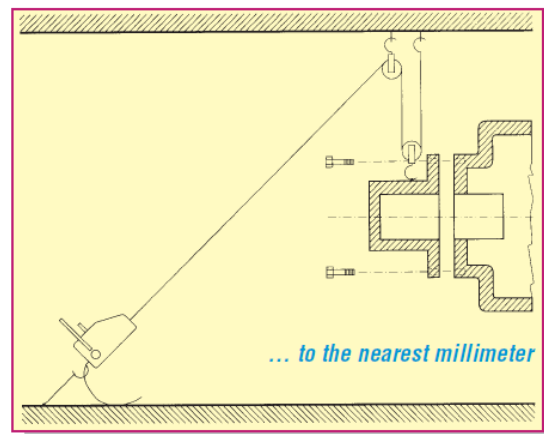
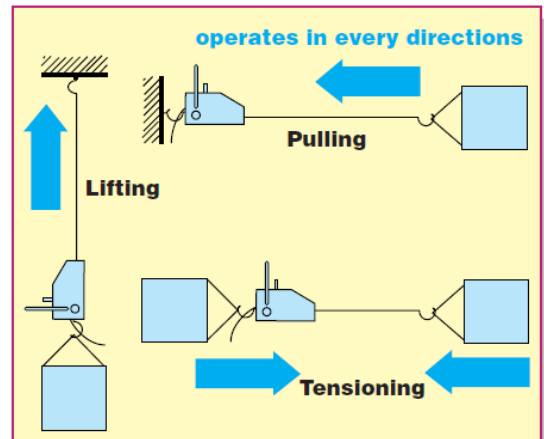
- fast and easy installation
- simple to feed in or remove the wire rope
- continuous operation without snatching
- reduced maintenance by simple cleaning and regular lubrication
- changeover from forward to reverse operation by transferring the operating handle from one lever to another

robust

- high mechanical advantage
- both ranges will operate in the most difficult conditions

reliable and safe

- whether lifting or lowering, the load is permanently controlled with the utmost precision ; when operation stops, the loads is spread between the two jaw blocks
- safety device to prevent overloading
- TU range approved for man-riding applications



APPLICATIONS

Construction, public works, civil engineering

- moving and positioning formwork horizontally or vertically
- positioning sections of precast concrete beams
- lifting work platforms or suspended working platforms
- dragging, general lifting, guying, tensioning, etc...

Pipelaying and jointing

- positioning of pipes for welding and jointing
- laying concrete pipes and pulling them together
- underwater pipeline assembly

Bridges

- positioning formwork
- guying
- pulling pre-cast concrete beams
- suspending inspection and maintenance platforms

Steel structures

- plumbing or aligning steel structure
- erecting steel silos

Industry

- installation and removal of machine tools and presses
- loading and unloading of heavy equipment
- lifting and pulling during maintenance operations

Escalators, elevators

- - loading, unloading and rigging of prefabricated escalators
- - lifting and positioning the cabins and drawing mechanisms

Electricity and telecommunications

- - positioning transformers
- - erection of mobile aerials and antennas
- - tensioning underground and overhead cables
- guying operations

Oil and chemical industries

- controlled positioning and assembly of pipes and ducting
- guying silos and tanks during construction
- inspection and maintenance work

Mines and quarries

- handling and positioning equipment and underground machinery
- tensioning conveyors

Shipbuilding and marine engineering

- centering ships in dry dock
- anchoring barges and pushers

Rail and road transport

- lifting and removal of pylons and signals
- maintenance and tensioning of catenaries
- load binding heavy and difficult loads
- loading and unloading
- de-bogging equipment

Armed forces

- many applications in the different sections of the Armed Forces (Engineering, Air Force, Artillery, Navy and Marines, signals and transportation)

Fire services and civil defence

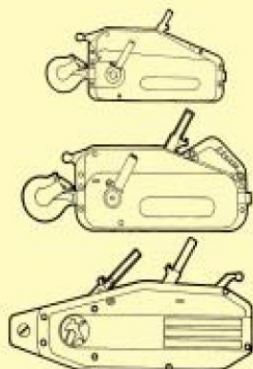
- - removing crash wreckage
- - handling and siting of emergency bridges

Agriculture

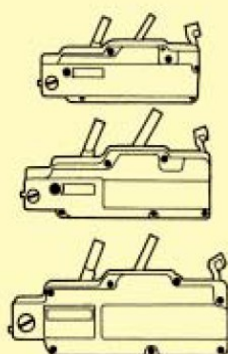
- - controlling the direction of fall of a tree
- - clearing trees and fences
- - debogging lorries, tractors and all mobile equipment
- - tensioning fences

TECHNICAL SPECIFICATIONS

Standard range



Light-duty range

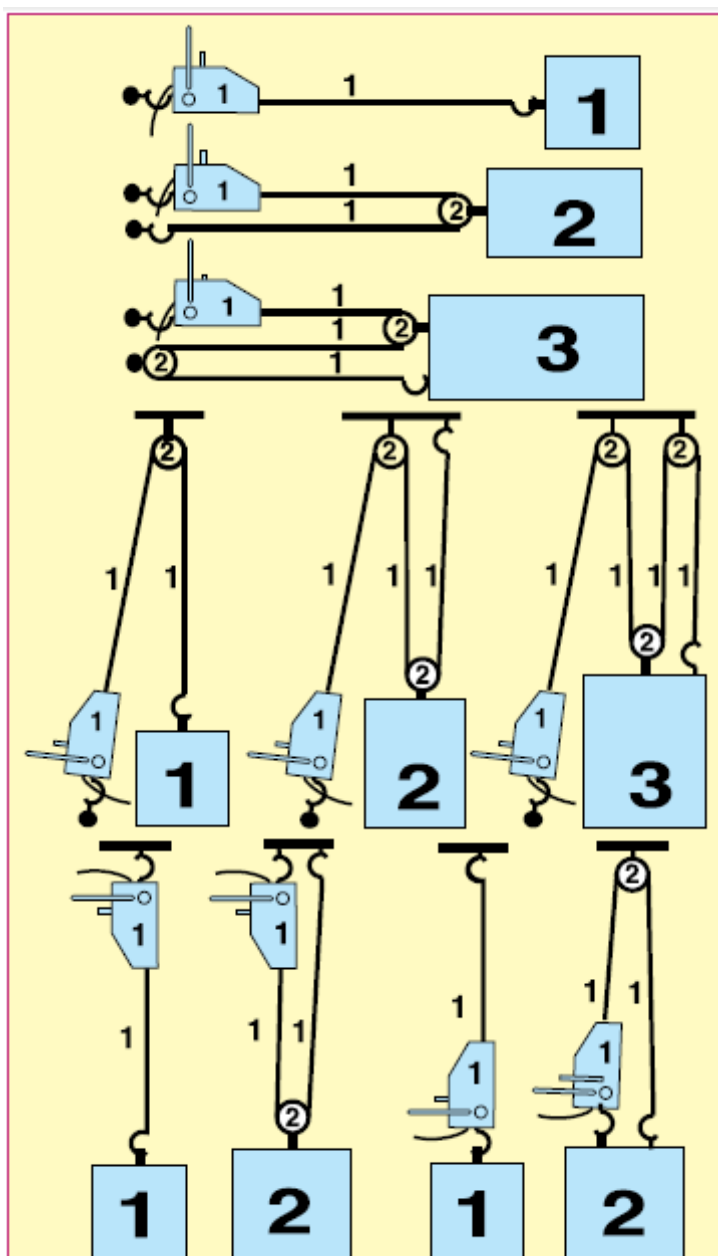


Increase the capacity of the TIRFOR





The lifting and pulling power of TIRFOR machines can be greatly increased by the use of multiple sheave blocks. These can increase the nominal capacity of the TIRFOR machine by 2, 3 or 4 times or more (see diagram opposite).

For most applications, an allowance must be made for friction in the sheaves. Ensure that the capacity of the blocks and liftings and anchor points are suitable for the load. When using the TIRFOR for pulling purposes it should be remembered that the necessary pulling effort is not equal to the load to be moved.

Model	nominal capacity daN/kg	Weight (kg)		dimensions (mm)		special TIRFOR W.R.	
		machine	w.r. 20 m	machine	handle ext./closed	Ø mm	break strain kg
TU-8	800	8,4	6,1	527x265x108	770 - 510	8	4000
TU-16	1600	20	13,5	660x330x140	1190 - 680	11,5	8000
TU-32	3200	27	26,6	676x330x156	1190 - 680	16	16000
T-508 D	800	6,6	6,1	420x250x59	690 - 400	8	4000
T-516 D	1600	13,5	13,1	530x315x127	1150 - 650	11,5	8000
T-532 D	3200	24	26,6	620x355x130	1150 - 650	16	16000



TECHNICAL SPECIFICATIONS

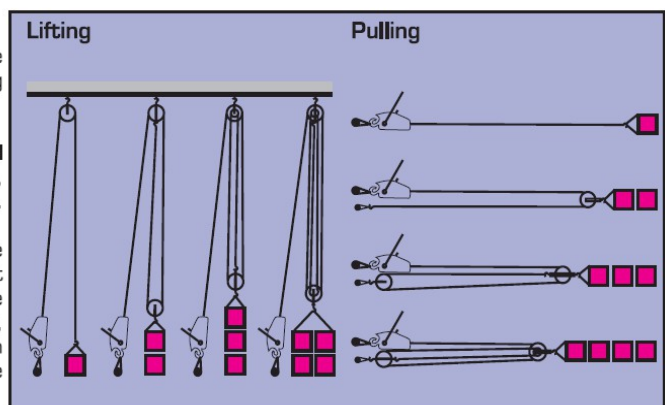
Technical Specifications	Nominal Lifting Capacity (Kg)	Maximum Traction Capacity (Kg)	Mass in Kg	Overall Dim. (mm)	Wire Rope Dia (mm)	Speed of Rope Movement Per Minute	Aggregate Wire Breaking Load (Kg)	Safety Factor
TU-8 	800	1 250	8.4	527 x 247 x 113	8.3	2 to 2.5 metres	5 200	5 to 1
TU-16 	1 600	2 500	18.5	660 x 330 x 145	11.5	2 to 3 metres	10 000	5 to 1
TU-35 	3 000	5 000	27.5	710 x 330 x 165	16.3	2 metres	19 100	5 to 1
TU-40 	4 000	6 000	27.0	676 x 330 x 157	16.3	2.8 metres	19 100	4 to 1

Increase of Lifting and Pulling Power

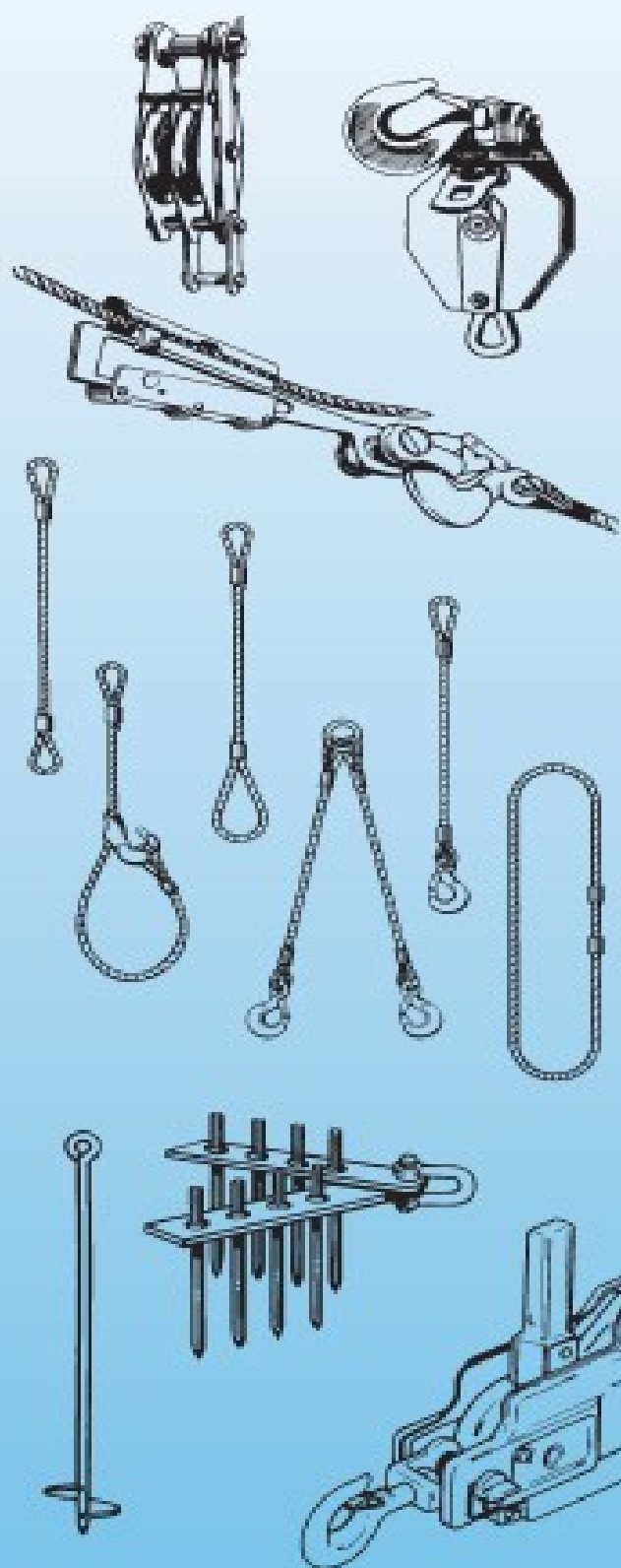
TIRFOR machines, used in conjunction with sheave blocks, will efficiently solve most of your pulling and lifting problems.

By using sheave blocks on the hauling rope, the nominal capacity of TIRFOR machines can be multiplied two, three or even four times as shown in the diagram.

As a rule it is not difficult to figure the number of line parts to be used for given load. It is, however, important - especially when there is no greater number of line parts - to take into account the friction in the sheaves, which can have a non-negligible influence on the strain exerted on the hoist and the top anchoring hook of the block.



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To make the best use of the TIRFOR machine, choose from the range of specially developed accessories.

Sheave blocks

To increase the capacity of TIRFOR machines in complete safety as described on the previous page. The following standard blocks are available :

- single side opening snatch block (Fig. 19)
- single snatch block, non-opening
- double blocks (Fig. 18)
- lightweight opening blocks

CONI-KLAM, wire rope gripper

To quickly lengthen a wire rope or sling. The wire rope is held by a pair of serrated jaws, operated by a self gripping wedge.

type	max. load (kg)	suitable for wire rope (mm)
EC 10	1000	5 - 10
EC 14	2000	10,5 - 14
EC 21	3000	15 - 21

Slings

For anchoring the TIRFOR or the load.

Manufactured in steel wire rope. The diagram shows the standard types, which are available in the length required. Any other type on request.

Ground anchor with spikes

To provide a fixed anchor point in the ground or even in sand.

Ground anchor with disc

In galvanised steel, to provide strong and effective anchor points.

Anchor hooks

For TIRFOR model TU-32 and all the models of the T-500 range.

tirfor®

Powered TIRFOR... a winning hand !

The powered models of the TIRFOR machines complement the manual units for heavy loads, such as operating large work platforms, lifting shuttering, moving machinery, etc...

Depending on the application, the working conditions and the power available, powered operation can be electro-hydraulic or pneumatic.

- saves time and labour
- no operator fatigue
- continuous operation
- increased safety

TIRAK the fast powered winch

As with the TIRFOR machine, the TIRAK also operates on a wire rope which passes through the mechanism. The originality and dependability of its wire rope drive mechanism make it a powered mobile winch which can replace conventional winches in a large number of applications.

Mounted in a frame with its wire rope reeler, the TIRAK assembly is very compact and easily moved from site to site. The TIRAK has been approved as a man-riding hoist by safety organisations in the majority of industrialised countries.

For additional information, please ask for the descriptive documentation on TIRAK.

Hydraulic TIRFOR

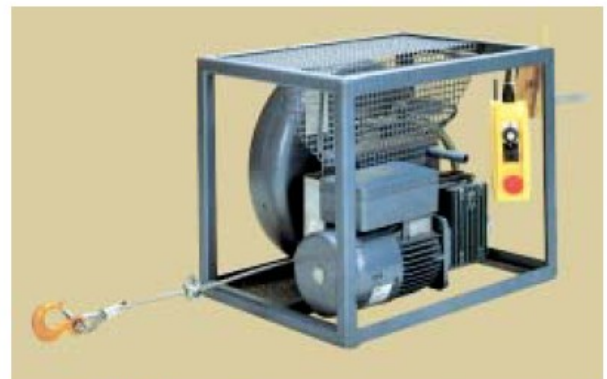
The TIRFOR hydraulic system includes a hydraulic power pack which allows remote operation (individually or simultaneously) of one, two or four machines : TIRFOR TU-16H (1600KG) or TU-32H (3200kg), each fitted with a self reciprocating hydraulic ram.

Pneumatic TIRFOR

This machine (model TU-32P) is particularly suitable for operating on construction sites and in industries where there is a danger of explosions or in industries already provided with compressed air facilities.



*TIRFOR TU-16H with hydraulic power pack
For additional information, please ask for descriptive documentation on motorised TIRFOR.*



TIRAK mobile winch with wire rope reeler mounted in a compact frame.

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